

41

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: John Beers Road

Agency: Berrien County Road Dept

Proposed Year: 2021

Total Points: 36

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	10	10
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	8
Extends RSL by 10-14 years (3R Project)	6	
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	2	2
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	2	
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	4
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	2

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	
ADT is 5,000 – 9,999	4	4
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	
Minor Arterial	2	2
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	1
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)		36

4.1

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	John Beers Road		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Cleveland Avenue to Village of Stevensville		
Project Length (nearest hundredth of a mile)	1.0	Proposed Year of Funding	2021
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill existing pavement with 4.75 foot paved shoulder		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 412,000
Local Match (18.15% minimum)	\$ 104,000
Total	\$ 516,000
Local Match Percentage (local match/total cost)	20 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	4
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	43	Pedestrian & Bicycle Crashes	0
Fatalities	0	Serious Injuries	9

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Better driving surface and 4.75 foot wide paved shoulders.
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Section 6. Complete Streets

Does this project meet the TwinCATS Complete Streets Policy, approved in 2014?

☒ Yes ☐ No

If yes, Please explain what pedestrian and/or bicycle improvements are included

4.75 foot wide paved shoulders on both sides of the road. Sidewalks from Cleveland Avenue to Roosevelt Road have already been installed. Lincoln Charter Township will be submitting Grant Applications to construct sidewalks from Roosevelt Road to Village of Stevensville in the future.

If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.

Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☒ Yes ☐ No If yes, please provide a map of the connecting facilities
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Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☒ 5000-10,000 ☐ Above 10,000 Year of count: 2013 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Minor Arterial
Does one of TCATA fixed route transit lines use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: Lincoln Charter Township Long Range Plan for Sidewalk Extension
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the 2017-2020 TwinCATS TIP cycle or RTE cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 John Beers Road : Eidson Road West to Yellow Creek and and 2017 John Beers Road Project from Yellow Creek to Lincoln Township Line

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	2	0	☐ Yes ☒ No	2	0	☐ Yes ☒ No
Shoulder Surface	☒ Paved ☒ Unpaved		Width (ft.) 4.75 foot paved and 1.25 feet gravel	☒ Paved ☒ Unpaved		Width (ft.) 4.75 foot paved and 1.25 feet gravel
Sidewalk/ path information	Placement ☐ One Side ☒ Both Sides ☐ Intermittent ☐ None		Width (ft.) 5 foot wide from Cleveland Avenue to Roosevelt Road	Placement ☐ One Side ☒ Both Sides ☐ Intermittent ☐ None		Width (ft.) 5 foot wide from Cleveland Avenue to Roosevelt Road
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☒ Wide Shoulders ☐ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☒ Wide Shoulders ☐ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☒ Yes ☐ No If yes, how? Lincoln Township Path along Roosevelt Road and sidewalks along Cleveland Avenue			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/20
Project Application Submitted to MOT	12/1/20
Grade Inspection Package Submitted to MDOT	1/15/21
Grade Inspection Meeting Scheduled	2/15/21
Final Plan and Estimate to MDOT	3/15/21
Right of Way (ROW) certified*	3/15/21
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/21

Project Obligated	3/15/21
Project Letting	4/15/21
Construction Start ☐	6/1/21
Project Completion	9/1/21

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***	
☐				
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***	
☐	Vertical Curve Modification	20%	All Applicable Crash Types + + +	
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
		55%	Sideswipe Opposite Crashes	
☒	High Friction Surface Treatment - Install	35%	Wet Crashes	
☐	Recessed Durable Pavement Markings	20%	All Other Applicable Crashes	
		5%	All Applicable Crashes	
		50%	Pedestrian Crashes (Review NCHRP Report 841)	
		50%	Suburban - All Applicable Crashes	
☐	Shoulder Rumble Strips	20%	Run-Off the Road Right Crashes	
☐	Signing/Delineation on Horizontal Curves (including Recessed Durable Pavement Markings) - Install	20%	Lane Departure***	
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMIF Clearing House ID 8658)	

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overtake Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install Reflectorized Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
		65%	Angle
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn 50% Head-On Left-Turn 20% Head-On, Angle, Other 15% Non Left-Turn Rear-End 30% Angle 15% Rear-End 10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related 65% Angle-Turn, Head-On Left-Turn 20% Rear-End Left-Turn 65% Angle-Turn 50% Other Applicable Crashes 20% Rear-End Right Turn 65% Rear-End Right-Turn 20% Applicable Rear-End Crashes, Sideswipe Same Direction 78% Fatal and A-Injury Reduction 57% Minor Crash Reduction - See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	
☐	Offset Left-Turn Lane - Construct	
☐	Offset Right-Turn Lane - Construct	
☐	Right-Turn Lane - Construct	
☐	Roundabout	
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)	15% All Applicable Crashes

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: John Bears Rd Agency: Berrien County Road Dept.
 Proposed Year: 2021 Total Points: 33

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	<u>10</u>	<u>10</u>
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	<u>6</u>	<u>6</u>
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	<u>2</u>	<u>2</u>
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	<u>2</u>	<u>2</u>
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	<u>4</u>	<u>4</u>
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	(3)	3
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	(3)	3
Minor Arterial	(2)	2
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	(3)	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	(1)	1
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	(2)	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)	35	

Twin Cities Area Transportation Study
2020-2023 Transportation Improvement Program (TIP)
Federal Surface Transportation Block Grant Funds
Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	John Beers Road		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Eidson Road to M-139		
Project Length (nearest hundredth of a mile)	0.6	Proposed Year of Funding	2021
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Construct 5 foot wide paved shoulders and resurface..		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 224,000
Local Match (18.15% minimum)	\$ 56,000
Total	\$ 280,000
Local Match Percentage (local match/total cost)	20 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	4
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	5	Pedestrian & Bicycle Crashes	0
Fatalities	0	Serious Injuries	1

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Better driving surface and 5 foot wide paved shoulders.
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Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☒ Yes ☐ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	Construct 5 foot wide paved shoulders on both sides of the road.
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	
Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☐ Yes ☒ No If yes, please provide a map of the connecting facilities

Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☒ 2000-5000 ☐ 5000-10,000 ☐ Above 10,000 Year of count: 2016 Source: BCRD
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Major Collector
Does one of TCATA fixed route transit lines use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: TWINCATS Illustrative List page 39 2017-2020 TIP
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 John Beers Road : Eidson Road West to Yellow Creek

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	2	0	☐ Yes ☒ No	2	0	☐ Yes ☒ No
Shoulder Surface	☒ Paved ☒ Unpaved		Width (ft.) 4 paved 2 gravel	☒ Paved ☒ Unpaved		Width (ft.) 5 paved 1 gravel
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☒ Wide Shoulders ☐ None			☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☒ Wide Shoulders ☐ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/20
Project Application Submitted to MOT	12/1/20
Grade Inspection Package Submitted to MDOT	1/15/21
Grade Inspection Meeting Scheduled	2/15/21
Final Plan and Estimate to MDOT	3/15/21
Right of Way (ROW) certified*	3/15/21
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/21
Project Obligated	3/15/21
Project Letting	4/15/21
Construction Start ☐	6/1/21
Project Completion	9/1/21

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
☒	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***	
☐				
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***	
☐	Vertical Curve Modification	20%	All Applicable Crash Types +++	
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
		55%	Sideswipe Opposite Crashes	
☒	High Friction Surface Treatment - Install	35%	Wet Crashes	
		20%	All Other Applicable Crashes	
☐	Recessed Durable Pavement Markings	5%	All Applicable Crashes	
☐	Pedestrian Refuge - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)	
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Suburban - All Applicable Crashes	
☐	Shoulder Rumble Strips	20%	Run-Off the Road Right Crashes	
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Lane Departure***	
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMF Clearing House ID 8658)	

Roadside Enhancements		
☐	Bicycle Lanes - Install per standards	50% Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33% Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75% Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55% Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85% Pedestrian Crashes
☐	Slope Flattening	15% Fixed-Object, Overturn Applicable Crashes
☐	Living Snow Fence	20% Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20% Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS		
Pedestrian / Bicycle Enhancements		
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30% All Crashes
☐	Bicycle Lanes - Install per standards	25% Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85% Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75% Pedestrian Fatal - Dark Unlighted Crashes
		40% Pedestrian A-Injury - Dark Unlighted Crashes
		30% All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47% Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30% Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25% Pedestrian Crashes
Signal Timing / Hardware Enhancements		
☐	Multiple Low-Cost Improvements	3% Rear-End
		12% Right-Angle
		3% Nighttime
☐	Install ReflectORIZED Backplates	15% All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20% Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10% All Crash Types
		65% Angle
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	-25% Rear-End (Increases Crashes)
		20% All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10% All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30% Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10% All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10% All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50% Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn 50% Head-On Left-Turn 20% Head-On, Angle, Other 15% Non Left-Turn Rear-End 30% Angle 15% Rear-End 10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related 65% Angle-Turn, Head-On Left-Turn 20% Rear-End Left-Turn 65% Angle-Turn 50% Other Applicable Crashes 20% Rear-End Right Turn 65% Rear-End Right-Turn 20% Applicable Rear-End Crashes, Sideswipe Same Direction 78% Fatal and A-Injury Reduction 57% Minor Crash Reduction - See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	
☐	Offset Left-Turn Lane - Construct	
☐	Offset Right-Turn Lane - Construct	
☐	Right-Turn Lane - Construct	
☐	Roundabout	
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)	15% All Applicable Crashes

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Napier AveAgency: Bertie County Road DeptProposed Year: 2021Total Points: 33

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	(10)	10
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	(6)	6
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	(2)	2
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	(2)	2
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	(5)	5
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	(3)	3
Minor Arterial	2	
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	(3)	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	(2)	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)	33	

Twin Cities Area Transportation Study
2020-2023 Transportation Improvement Program (TIP)
Federal Surface Transportation Block Grant Funds
Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Napier Avenue		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Broadway Avenue to 3700 Feet East of St. Joseph River		
Project Length (nearest hundredth of a mile)	0.52	Proposed Year of Funding	2021
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill. ADA sidewalk ramp upgrades as required,		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 256,000
Local Match (18.15% minimum)	\$ 64,000
Total	\$ 320,000
Local Match Percentage (local match/total cost)	20 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	3
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <u>Guidelines for Geometrics on Local Projects</u>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	86	Pedestrian & Bicycle Crashes	4
Fatalities	0	Serious Injuries	26
Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project			
Describe any other safety improvements this project will provide	Better driving surface.		

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☐ Yes ☒ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	This is a mill and fill project to maintain the pavement surface. Pedestrian and/or bicycle improvements are being pursued with other funds. St Joseph Charter Township is applying for grant funds to construct a sidewalk in St Joseph Charter Township.

Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☐ Yes ☒ No
If yes, please provide a map of the connecting facilities	
Section 7. Regional Connectivity	
What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☐ 5000-10,000 ☒ Above 10,000 Year of count: 2009 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Other Principal Arterial
Does one of <u>TCATA fixed route transit lines</u> use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment	
Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD Plan dated 2018
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: TWINCATS Illustrative List of Projects page 39 2017-2020 TIP
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 Napier Avenue Project from St Joseph River to 3700 feet East and 2020 Napier Avenue Project from I-94 West 4300 feet. Napier Avenue will be resurfaced from St Joseph River to I-94 over a 6 year time frame.

City of TwinCATS	
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Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	4	0	☐ Yes ☒ No	4	0	☐ Yes ☒ No
Shoulder Surface	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description	New pavement markings and signs.					
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?	☐ Yes ☒ No If yes, how?					

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/20
Project Application Submitted to MOT	12/1/20
Grade Inspection Package Submitted to MDOT	1/15/21
Grade Inspection Meeting Scheduled	2/15/21
Final Plan and Estimate to MDOT	3/15/21
Right of Way (ROW) certified*	3/15/21
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/21
Project Obligated	4/15/21
Project Letting	4/15/21
Construction Start ☐	6/1/21
Project Completion	9/1/21

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
		5%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 1' each side)	10%	Lane Departure***	
		15%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 2' each side)	20%	Lane Departure***	
		25%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 3' each side)	30%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 4' each side)	35%	Lane Departure***	
		20%	All Applicable Crash Types + + +	
☐	Shoulders - Widen to Standard Width (add 5' each side)			
☐	Shoulders - Widen to Standard Width (add 6' each side)			
☐	Shoulders - Widen to Standard Width (add 7' each side)			
☐	Vertical Curve Modification			
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
		44%	K and A injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
☐	Centerline Rumble Strips - Install	55%	Sideswipe Opposite Crashes	
		35%	Wet Crashes	
		20%	All Other Applicable Crashes	
		5%	All Applicable Crashes	
☒	High Friction Surface Treatment - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)	
		50%	Suburban - All Applicable Crashes	
		20%	Run-Off the Road Right Crashes	
		20%	Lane Departure***	
☐	Recessed Durable Pavement Markings			
☐	Pedestrian Refuge - Install			
☐	Road Diet (4-3 Lane Conversion) - Install			
☐	Shoulder Rumble Strips			
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install			
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMF Clearing House ID 8658)	

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overtake Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install ReflectORIZED Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
		65%	Angle
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn 50% Head-On Left-Turn 20% Head-On, Angle, Other 15% Non Left-Turn Rear-End 30% Angle 15% Rear-End 10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related 65% Angle-Turn, Head-On Left-Turn 20% Rear-End Left-Turn 65% Angle-Turn 50% Other Applicable Crashes 20% Rear-End Right Turn 65% Rear-End Right-Turn 20% Applicable Rear-End Crashes, Sideswipe Same Direction 78% Fatal and A-Injury Reduction 57% Minor Crash Reduction - See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	
☐	Offset Left-Turn Lane - Construct	
☐	Offset Right-Turn Lane - Construct	
☐	Right-Turn Lane - Construct	
☐	Roundabout	
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipops)	15% All Applicable Crashes

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Napier AveAgency: Berrien CountyProposed Year: 2022Total Points: 34

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	(10)	10
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	(6)	6
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	(2)	2
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	(2)	2
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	5
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	3
Minor Arterial	2	
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	1
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)		

4.4

Twin Cities Area Transportation Study
2020-2023 Transportation Improvement Program (TIP)
Federal Surface Transportation Block Grant Funds
Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Napier Avenue		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Broadway Avenue to 500 Feet West of Milton		
Project Length (nearest hundredth of a mile)	0.56	Proposed Year of Funding	2022
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill. ADA sidewalk ramp upgrades as required.		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 336,000
Local Match (18.15% minimum)	\$ 84,000
Total	\$ 420,000
Local Match Percentage (local match/total cost)	20 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	3
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	80	Pedestrian & Bicycle Crashes	0
Fatalities	0	Serious Injuries	29

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Better driving surface.
--	-------------------------

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☐ Yes ☒ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	This is a mill and fill project to maintain the pavement surface. Pedestrian and/or bicycle improvements are being pursued with other funds.
Does this project connect to an existing pedestrian/bicycle facility or one that is	☐ Yes ☒ No

planned to be completed from 2020-2023?	If yes, please provide a map of the connecting facilities
Section 7. Regional Connectivity	
What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☐ 5000-10,000 ☒ Above 10,000 Year of count: 2009 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Other Principal Arterial
Does one of <u>TCATA fixed route transit lines</u> use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment	
Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: TWINCATS Illustrative List of Projects page 39 2017-2020 TIP
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 Napier Avenue Project from St Joseph River to 3700 feet East and 2020 Napier Avenue Project from I-94 West 4300 feet. Napier Avenue will be resurfaced from St. Joseph River to I-94 over a 6 year time frame.

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	4	0 until Union Avenue then 1	☐ Yes ☒ No	4	0 until Union Avenue then 1	☐ Yes ☒ No
Shoulder Surface	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description	New pavement markings and signs.					
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?	☐ Yes ☒ No If yes, how?					

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/21
Project Application Submitted to MOT	12/1/21
Grade Inspection Package Submitted to MDOT	1/15/22
Grade Inspection Meeting Scheduled	2/15/22
Final Plan and Estimate to MDOT	3/15/22
Right of Way (ROW) certified*	3/15/22
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/22
Project Obligated	4/15/22
Project Letting	4/15/22

Construction Start ☐	6/1/22
Project Completion	9/1/22

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
		5%	Lane Departure***	
		10%	Lane Departure***	
		15%	Lane Departure***	
		20%	Lane Departure***	
		25%	Lane Departure***	
		30%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 1' each side)	35%	Lane Departure***	
☐	Vertical Curve Modification	20%	All Applicable Crash Types +++	
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
☐	Centerline Rumble Strips - Install	44%	K and A Injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
		55%	Sideswipe Opposite Crashes	
☒	High Friction Surface Treatment - Install	35%	Wet Crashes	
☐	Recessed Durable Pavement Markings	20%	All Other Applicable Crashes	
☐	Pedestrian Refuge - Install	5%	All Applicable Crashes	
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)	
☐	Shoulder Rumble Strips	50%	Suburban - All Applicable Crashes	
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Run-Off the Road Right Crashes	
☐	Safety Edge Improvement	20%	Lane Departure***	
☐		13%	All non-intersection crashes (CMF Clearing House ID 8658)	

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overtake Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install Reflectorized Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn 50% Head-On Left-Turn 20% Head-On, Angle, Other 15% Non Left-Turn Rear-End 30% Angle 15% Rear-End 10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related 65% Angle-Turn, Head-On Left-Turn 20% Rear-End Left-Turn 65% Angle-Turn 50% Other Applicable Crashes 20% Rear-End Right Turn 65% Rear-End Right-Turn 20% Applicable Rear-End Crashes, Sideswipe Same Direction 78% Fatal and A-Injury Reduction 57% Minor Crash Reduction - See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	
☐	Offset Left-Turn Lane - Construct	
☐	Offset Right-Turn Lane - Construct	
☐	Right-Turn Lane - Construct	
☐	Roundabout	
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)	15% All Applicable Crashes

4.5

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Napier AveAgency: Berrien County Road DeptProposed Year: 2020Total Points: 33

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	<u>10</u>	<u>10</u>
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	<u>6</u>	<u>6</u>
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	<u>2</u>	<u>2</u>
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	<u>2</u>	<u>2</u>
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	5
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	3
Minor Arterial	2	
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)	33	

4.5

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Napier Avenue		
Project Limits (e.g. Napier Ave. to Britain Ave.)	I-94 to 4300 feet West		
Project Length (nearest hundredth of a mile)	0.81	Proposed Year of Funding	2020
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill. ADA sidewalk ramps upgrades as required.		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 471,000
Local Match (18.15% minimum)	\$ 104,000
Total	\$ 575,000
Local Match Percentage (local match/total cost)	18.15
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	3
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	97	Pedestrian & Bicycle Crashes	3
Fatalities	0	Serious Injuries	12

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Better driving surface.
--	-------------------------

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?		☐ Yes ☒ No
If yes, Please explain what pedestrian and/or bicycle improvements are included		
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	Exempt granted in 2016 during previous project selection process.	
Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☐ Yes ☒ No If yes, please provide a map of the connecting facilities	

Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☐ 5000-10,000 ☒ Above 10,000 Year of count: 2012 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Other Principal Arterial
Does one of <u>TCATA fixed route transit lines</u> use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: TWINCATS 2020 TIP Plan
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP cycle</u> or <u>RTF cycle</u> ?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 Napier Avenue from St. Joseph River Bridge to 3700 Feet East. Napier Avenue will be resurfaced over a 6 year time frame from St Joseph River to I-94.

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	4	1	☐ Yes ☒ No	4	1	☐ Yes ☒ No
Shoulder Surface	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/19
Project Application Submitted to MOT	12/1/19
Grade Inspection Package Submitted to MDOT	1/15/20
Grade Inspection Meeting Scheduled	2/15/20
Final Plan and Estimate to MDOT	3/15/20
Right of Way (ROW) certified*	3/15/20
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/20
Project Obligated	4/15/20
Project Letting	4/15/20
Construction Start ☐	6/1/20
Project Completion	9/1/20

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***	
☐				
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***	
☐	Vertical Curve Modification	20%	All Applicable Crash Types +	
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
		55%	Sideswipe Opposite Crashes	
☒	High Friction Surface Treatment - Install	35%	Wet Crashes	
		20%	All Other Applicable Crashes	
☐	Recessed Durable Pavement Markings	5%	All Applicable Crashes	
☐	Pedestrian Refuge - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)	
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Suburban - All Applicable Crashes	
☐	Shoulder Rumble Strips	20%	Run-Off the Road Right Crashes	
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Lane Departure***	
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMF Clearing House ID 8658)	

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overtum Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
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		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
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☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install ReflectORIZED Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn
		50% Head-On Left-Turn
		20% Head-On, Angle, Other
		15% Non Left-Turn Rear-End
		30% Angle
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	15% Rear-End
		10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related
		65% Angle-Turn, Head-On Left-Turn
☐	Offset Left-Turn Lane - Construct	20% Rear-End Left-Turn
		65% Angle-Turn
☐	Offset Right-Turn Lane - Construct	50% Other Applicable Crashes
		20% Rear-End Right Turn
		65% Rear-End Right-Turn
☐	Right-Turn Lane - Construct	20% Applicable Rear-End Crashes, Sideswipe Same Direction
		78% Fatal and A-Injury Reduction
☐	Roundabout	57% Minor Crash Reduction
☐	Lighting	See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)	15% All Applicable Crashes

4.6

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Napier Ave.

Agency: Berrien County Road Dept

Proposed Year: 2023

Total Points: 34

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	<u>10</u>	<u>10</u>
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	<u>6</u>	<u>6</u>
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	<u>2</u>	<u>2</u>
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	<u>2</u>	<u>2</u>
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	5
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	3
Minor Arterial	2	
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	1
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)		34

4.6

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Napier Avenue		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Plaza Drive to 4300 Feet West of I-94		
Project Length (nearest hundredth of a mile)	0.30	Proposed Year of Funding	2023
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill. ADA sidewalk ramps upgrade as required.		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 200,000
Local Match (18.15% minimum)	\$ 50,000
Total	\$ 250,000
Local Match Percentage (local match/total cost)	20.00 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	3
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see [Michigan Crash Facts](#) for crash data)

Total Crashes	48	Pedestrian & Bicycle Crashes	1
Fatalities	0	Serious Injuries	15

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Better driving surface.
--	-------------------------

Section 6. Complete Streets

Does this project meet the TwinCATS Complete Streets Policy , approved in 2014?	☐ Yes ☒ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	This is a mill and fill project to maintain the pavement surface. Pedestrian and/or bicycle improvements are being pursued with other funds.
Does this project connect to an existing pedestrian/bicycle facility or one that is	☐ Yes ☒ No

planned to be completed from 2020-2023?	If yes, please provide a map of the connecting facilities
Section 7. Regional Connectivity	
What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☐ 5000-10,000 ☒ Above 10,000 Year of count: 2009 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Other Principal Arterial
Does one of <u>TCATA fixed route transit lines</u> use the road? (Only indicate yes if it carries a current route, not a planned route).	☒ Yes ☐ No

Section 8. Strategic Planning & Investment	
Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD Plan dated 2018
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: Illustrative Project List, page 39 2017-2020 TIP
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2019 Napier Avenue Project from St Joseph River to East 3700 feet and 2020 Napier Avenue Project from I-94 to 4300 feet West. Napier Avenue will be resurfaced from St Joseph River to I-94 during the next 6 years.

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	4	1	☐ Yes ☒ No	4	1	☐ Yes ☒ No
Shoulder Surface	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter	☐ Paved ☐ Unpaved		Width (ft.) Curb and Gutter
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☐ Wide Shoulders ☒ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/22
Project Application Submitted to MOT	12/1/22
Grade Inspection Package Submitted to MDOT	1/15/23
Grade Inspection Meeting Scheduled	2/15/23
Final Plan and Estimate to MDOT	3/15/23
Right of Way (ROW) certified*	3/15/23
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/23
Project Obligated	4/15/23
Project Letting	4/15/23
Construction Start ☐	6/1/23
Project Completion	9/1/23

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types	
SEGMENT CRASH REDUCTION FACTORS				
Geometric Safety Enhancements				
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn	
		50%	Head-On Left-Turn	
		20%	Head-On, Angle, Sideswipe*	
		15%	Non Left-Turn Rear-End, Other*	
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn	
		30%	Angle	
		15%	Rear-End	
		10%	Other*	
☐	Horizontal Curve Flattening	30%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***	
☐	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***	
☐				
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***	
☐	Vertical Curve Modification	20%	All Applicable Crash Types + + +	
General Segment Enhancements				
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes	
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes	
		46%	Single Vehicle Run off Road Left Crashes	
		43%	Sideswipe Same Crashes	
		55%	Sideswipe Opposite Crashes	
☒	High Friction Surface Treatment - Install	35%	Wet Crashes	
		20%	All Other Applicable Crashes	
☐	Recessed Durable Pavement Markings	5%	All Applicable Crashes	
☐	Pedestrian Refuge - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)	
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Suburban - All Applicable Crashes	
☐	Shoulder Rumble Strips	20%	Run-Off the Road Right Crashes	
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Lane Departure***	
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMF Clearing House ID 8658)	

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overtake Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install ReflectORIZED Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements	
☐	Center Left-Turn Lane - Construct
	80% Rear-End Left-Turn
	50% Head-On Left-Turn
	20% Head-On, Angle, Other
	15% Non Left-Turn Rear-End
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)
	30% Angle
	15% Rear-End
	10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related
☐	Offset Left-Turn Lane - Construct
	65% Angle-Turn, Head-On Left-Turn
	20% Rear-End Left-Turn
☐	Offset Right-Turn Lane - Construct
	65% Angle-Turn
	50% Other Applicable Crashes
	20% Rear-End Right Turn
☐	Right-Turn Lane - Construct
	65% Rear-End Right-Turn
	20% Applicable Rear-End Crashes, Sideswipe Same Direction
☐	Roundabout
	78% Fatal and A-Injury Reduction
	57% Minor Crash Reduction
☐	Lighting
	- See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
General Intersection Enhancements (Non-Signalized Intersections)	
☐	All-Way Stop Control - New Installation
	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **
	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **
	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade
	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade
	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)
	15% All Applicable Crashes

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Pipestone RoadAgency: Berrien County Road DeptProposed Year: 2022Total Points: 26

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	<u>10</u>	<u>10</u>
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	<u>6</u>	<u>6</u>
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	<u>2</u>	<u>2</u>
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	2	
Number of crashes are within 20% of MPO median (2-3)	<u>1</u>	<u>1</u>
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	4	
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	3
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	
Minor Arterial	2	
Major Collector	1	1
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)		26

4.7

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Pipestone Road		
Project Limits (e.g. Napier Ave. to Britain Ave.)	Nickerson Road to Sodus Parkway		
Project Length (nearest hundredth of a mile)	1.45	Proposed Year of Funding	2022
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill existing HMA Surface.		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 244,000
Local Match (18.15% minimum)	\$ 61,000
Total	\$ 305,000
Local Match Percentage (local match/total cost)	20 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	4
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <i>Guidelines for Geometrics on Local Projects</i>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	16	Pedestrian & Bicycle Crashes	0
Fatalities	0	Serious Injuries	3
Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project:			
Describe any other safety improvements this project will provide	Better driving surface.		

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☐ Yes ☒ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	.
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	HMA surface needs to be milled and filled.
Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☐ Yes ☒ No If yes, please provide a map of the connecting facilities

Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☒ Less than 2000 ☐ 2000-5000 ☐ 5000-10,000 ☐ Above 10,000 Year of count: 2016 Source: BCRD
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Major Collector
Does one of TCATA fixed route transit lines use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☐ Yes ☒ No If yes, please cite the plan and page number:
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year: No watermain or sanitary sewer.
How many water main breaks have you had at this location in the past five years?	N/A
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☐ Yes ☒ No What segment was the PREVIOUS project done on?

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	2	0	☐ Yes ☒ No	2	0	☐ Yes ☒ No
Shoulder Surface	☒ Paved ☒ Unpaved		Width (ft.) 1 foot paved and 5 foot gravel	☒ Paved ☒ Unpaved		Width (ft.) 1 foot paved and 5 foot gravel
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) ☐ Sharrows ☐ Wide Shoulders ☒ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/21
Project Application Submitted to MOT	12/1/21
Grade Inspection Package Submitted to MDOT	1/15/22
Grade Inspection Meeting Scheduled	2/15/22
Final Plan and Estimate to MDOT	3/15/22
Right of Way (ROW) certified*	3/15/22
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/22
Project Obligated	3/15/22
Project Letting	4/15/22
Construction Start ☐	6/1/22

Project Completion	9/1/22
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*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types
SEGMENT CRASH REDUCTION FACTORS			
Geometric Safety Enhancements			
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn
		50%	Head-On Left-Turn
		20%	Head-On, Angle, Sideswipe*
		15%	Non Left-Turn Rear-End, Other*
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn
		30%	Angle
		15%	Rear-End
		10%	Other*
☐	Horizontal Curve Flattening	30%	Lane Departure***
		5%	Lane Departure***
		10%	Lane Departure***
		15%	Lane Departure***
		20%	Lane Departure***
		25%	Lane Departure***
		30%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 1' each side)	35%	Lane Departure***
		20%	All Applicable Crash Types +
General Segment Enhancements			
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes
		44%	K and A Injury Applicable Crashes
		46%	Single Vehicle Run off Road Left Crashes
		43%	Sideswipe Same Crashes
☐	Centerline Rumble Strips - Install	55%	Sideswipe Opposite Crashes
		35%	Wet Crashes
		20%	All Other Applicable Crashes
		5%	All Applicable Crashes
☒	High Friction Surface Treatment - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)
		50%	Suburban - All Applicable Crashes
		20%	Run-Off the Road Right Crashes
		20%	Lane Departure***
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	13%	All non-intersection crashes (CMF Clearing House ID 8658)

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overturn Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>Install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install ReflectORIZED Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn
		50% Head-On Left-Turn
		20% Head-On, Angle, Other
		15% Non Left-Turn Rear-End
		30% Angle
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	15% Rear-End
		10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related
		65% Angle-Turn, Head-On Left-Turn
		20% Rear-End Left-Turn
☐	Offset Left-Turn Lane - Construct	65% Angle-Turn
		50% Other Applicable Crashes
		20% Rear-End Right Turn
		65% Rear-End Right-Turn
☐	Right-Turn Lane - Construct	20% Applicable Rear-End Crashes, Sideswipe Same Direction
		78% Fatal and A-Injury Reduction
		57% Minor Crash Reduction
		- See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipops)	15% All Applicable Crashes

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Marguett Woods Rd Agency: Barrien County Road Dept

Proposed Year: 2020 + 2021 Total Points: 38

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	(10)	10
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	(6)	6
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	(2)	2
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	(2)	2
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	(4)	4
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	(2)	2

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	
ADT is 5,000 – 9,999	4	
ADT is 2,000 – 4,999	3	3
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	
Minor Arterial	2	
Major Collector	1	1
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	1
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	2
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)	38	

4.8

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information

Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269-925-1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information

Project Name/Road Name	Marquette Woods Road Widened Shoulders - Roosevelt to Cleveland		
Project Limits (e.g. Napier Ave. to Britain Ave.)	S. Roosevelt to Cleveland Ave.		
Project Length (nearest hundredth of a mile)	0.5	Proposed Year of Funding	2020 and 2021
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☒ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Widen shoulders to 6 ft. paved, resurface existing HMA surface. Work requires widening of existing bridge over Hickory Creek to accommodate pedestrian use.		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☒ Yes ☐ No If yes, please explain:		

Section 3. Project Funding

Federal Funding Requested	\$ 400,000 in 2020 and Advance Construct \$70,000 in 2021
Local Match (18.15% minimum)	\$ see attached work sheet
Total	\$ 1,224,000
Local Match Percentage (local match/total cost)	31 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☒ Yes ☐ No Maximum Dollar Amount you can AC? \$ 100,000

Section 4. System Preservation

2018 PASER rating (available as an excel file)	3
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <u>Guidelines for Geometrics on Local Projects</u>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see Michigan Crash Facts for crash data)

Total Crashes	9	Pedestrian & Bicycle Crashes	0
Fatalities	0	Serious Injuries	2

Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project

Describe any other safety improvements this project will provide	Installation of 6 ft. paved shoulders and new, widened bridge. There are currently LIMITED shoulders on this section of roadway.
--	--

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☒ Yes ☐ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	Widened shoulders.
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	
Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☒ Yes ☐ No If yes, please provide a map of the connecting facilities

Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☒ 2000-5000 ☐ 5000-10,000 ☐ Above 10,000 Year of count: 2016 Source: Berrien County Road Department
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Major Collector
Does one of <u>TCATA fixed route transit lines</u> use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☒ Yes ☐ No If yes, please cite the plan and page number: TOWNSHIP NON-MOTORIZED PLAN
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	0
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the <u>2017-2020 TwinCATS TIP</u> cycle or <u>RTF</u> cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2015 Marquette Woods Road Project from Roosevelt Road to St Joseph Avenue

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	2		☐ Yes ☒ No	2		☐ Yes ☒ No
Shoulder Surface	☐ Paved ☒ Unpaved		Width (ft.) 6	☒ Paved ☐ Unpaved		Width (ft.) 6
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☐ Wide Shoulders ☒ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows ☒ Wide Shoulders ☐ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☒ Local Match Submitted to SWMPC	2/2019
Project Application Submitted to MOT	06/28/19
Grade Inspection Package Submitted to MDOT	07/12/19
Grade Inspection Meeting Scheduled	08/09/19
Final Plan and Estimate to MDOT	09/27/19
Right of Way (ROW) certified*	NA
Rail Road Permits*	NA
Environmental Mitigation*	9/27/19
Project Obligated	10/25/19
Project Letting	12/06/19
Construction Start ☐	04/03/20
Project Completion	07/03/20

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types
SEGMENT CRASH REDUCTION FACTORS			
Geometric Safety Enhancements			
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn
		50%	Head-On Left-Turn
		20%	Head-On, Angle, Sideswipe*
		15%	Non Left-Turn Rear-End, Other*
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn
		30%	Angle
		15%	Rear-End
		10%	Other*
☐	Horizontal Curve Flattening	30%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***
☒	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***
☐			
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***
☐	Vertical Curve Modification	20%	All Applicable Crash Types +++
General Segment Enhancements			
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes
		46%	Single Vehicle Run off Road Left Crashes
		43%	Sideswipe Same Crashes
		55%	Sideswipe Opposite Crashes
☒	High Friction Surface Treatment - Install	35%	Wet Crashes
		20%	All Other Applicable Crashes
☐	Recessed Durable Pavement Markings	5%	All Applicable Crashes
☐	Pedestrian Refuge - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Suburban - All Applicable Crashes
☐	Shoulder Rumble Strips	20%	Run-Off the Road Right Crashes
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Lane Departure***
☐	Safety Edge Improvement	13%	All non-intersection crashes (CMF Clearing House ID 8658)

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overturn Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install Reflectorized Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12 "</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn 50% Head-On Left-Turn 20% Head-On, Angle, Other 15% Non Left-Turn Rear-End 30% Angle 15% Rear-End 10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related 65% Angle-Turn, Head-On Left-Turn 20% Rear-End Left-Turn 65% Angle-Turn 50% Other Applicable Crashes 20% Rear-End Right Turn 65% Rear-End Right-Turn 20% Applicable Rear-End Crashes, Sideswipe Same Direction 78% Fatal and A-Injury Reduction 57% Minor Crash Reduction - See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	
☐	Offset Left-Turn Lane - Construct	
☐	Offset Right-Turn Lane - Construct	
☐	Right-Turn Lane - Construct	
☐	Roundabout	
☐	Lighting	
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
☐	Ground Mounted Flashing Beacons (Red)- Install **	30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons(Amber) - Install **	20% All Crashes On Install Approach
☐	Signing - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
☐	Reflective Sheeting on Sign Posts (lollipop)	15% All Applicable Crashes

December 3, 2018

Cost information for Marquette Woods Road

2020 already approved	STP-U	\$400,000
Request 2021 Advance Construct Conversion	STP-U	\$ 70,000
Lincoln Charter Township Match		\$100,000
Category F Grant should be notified by 12/19/18		\$375,000
Berrien County Road Department Match		\$279,000
Total Project		\$ 1,224,000



Berrien County Road
 Commission

Lincoln Charter Township
 FY 2021

STP TIP Application
 Marquette Woods Road
 Widened Shoulders &
 Resurfacing

Widened Shoulders
 Roosevelt Rd to
 Cleveland Ave.

STP

(Proposed FY 2020-21)

Widened Shoulders
 Cleveland Ave. To
 Washington Ave.

STP

(Proposed)

November 30, 2018

williams&works
 engineers | surveyors | planners

TwinCATS 2020-2023 Road Project Prioritization System

Project Name: Washington Ave

Agency: Bernier County Road Dept.

Proposed Year: 2028

Total Points: 36

Criteria	Points	
System Preservation	18 points max	
a. Most recent PASER rating		
3-4	(10)	10
5-6	8	
1-2	5	
b. Extension of Remaining Service Life (RSL) based on MDOT Geometric Guidelines		
Extends RSL by 15 years or more (4R project)	8	
Extends RSL by 10-14 years (3R Project)	(6)	6
Extends RSL by 5-9 years (Preventative Maintenance)	4	
Extends RSL by 2-4 years (Preventative Maintenance)	2	
Safety	7 points max	
a. Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors		
50% or greater	5	
40%-49.9%	4	
30% - 39.9%	3	
20% - 29.9%	(2)	2
10% - 19.9%	1	
Less than 10%	0	
b. Addressing High Crash Locations.		
Number of crashes is 20% higher than MPO median (4 or more)	(2)	2
Number of crashes are within 20% of MPO median (2-3)	1	
Number of crashes is lower than 20% of the MPO median (0-1)	0	
Non-motorized Transportation / Complete Streets	6 points max	
a. Follows the Complete Streets Policy	(4)	4
b. Pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed between 2019 and 2023.	2	

Criteria	Points	
Regional Connectivity	10 points max	
a. Average daily traffic (ADT) based on most recent traffic count		
ADT is 10,000 or more	5	
ADT is 5,000 – 9,999	4	4
ADT is 2,000 – 4,999	3	
ADT is less than 2,000	0	
b. Functional Classification of the Road		
Principal Arterial	3	
Minor Arterial	2	2
Major Collector	1	
Minor Collector	0	
c. Fixed route transit (TCATA Red or Blue line) uses the road	2	
Strategic Investment/ Project Planning	11 points max	
a. Project is identified in an Asset Management or Capital Improvement Plan	3	3
b. Project is identified as a priority in another planning document such as a master plan or parks and recreation plan	1	
c. Project crosses jurisdictional boundaries (i.e. city to township) and is arranged in such a way to be bid as a single project.	1	
d. Project continues resurfacing, reconstruction, or preventative maintenance on a segment of roadway adjacent to a project completed during the 2017-2020 TIP cycle or through Rural Task Force funding.	2	2
e. Additional Local Match		
Agency will provide 40% or more local match	4	
Agency will provide 30% to 39.9% local match	2	2
Note: An 18.15% local match is the minimum required		
Project Readiness (no points)	Yes	
Coordination with sewer or other infrastructure (no points)	Yes	
Total Score (out of 52)		36

Twin Cities Area Transportation Study 2020-2023 Transportation Improvement Program (TIP) Federal Surface Transportation Block Grant Funds Project Application

Click "Enable Editing" to begin filling out this form. You may save this form at any time.

Section 1. Applicant Information			
Agency Name	Berrien County Road Department		
Contact Name	Brian Berndt	Title	County Highway Engineer
Phone Number	269 925 1196 ext 4407	Email	bberndt@bcroad.org

Section 2. Project Information			
Project Name/Road Name	Washington Avenue		
Project Limits (e.g. Napier Ave. to Britain Ave.)	M-63 to Maiden Lane		
Project Length (nearest hundredth of a mile)	2.14	Proposed Year of Funding	2023
Primary Work Type	☐ Reconstruct ☐ Restore & Rehabilitate ☐ Roadside Facility ☒ Resurface ☐ Traffic Operations/Safety ☐ Other		
Project Description (Please provide major work items including sidewalks, utility work, ADA upgrades etc.)	Mill and Fill existing pavement..		
Was this project awarded funding for the 2017-2020 TIP, but was either canceled or failed to be obligated	☐ Yes ☒ No If yes, please explain:		

Section 3. Project Funding	
Federal Funding Requested	\$ 500,000
Local Match (18.15% minimum)	\$ 300,000
Total	\$ 800,000
Local Match Percentage (local match/total cost)	37.5 %
Does your agency have the financial capacity to Advance Construct (AC) all or part of this project if necessary? If yes, what is the maximum dollar amount your agency is willing to Advance Construct (AC)?	☐ Yes ☒ No Maximum Dollar Amount you can AC? \$

Section 4. System Preservation

2018 PASER rating (available as an excel file)	4
Current state of drainage	☒ Adequate ☐ Minor and tolerable drainage problems ☐ Occasional drainage problems with some maintenance required ☐ Inadequate drainage, frequent flooding, excessive maintenance required
Expected increase in Remaining Service life (RSL)	☐ 0-3 years ☐ 4-6 ☐ 7-9 ☐ 10-14 ☒ 15-20 Use MDOT's <u>Guidelines for Geometrics on Local Projects</u>
What MDOT guidelines does the project conform to?	☐ Reconstruction (4R) ☒ Resurfacing, restoration, and Rehabilitation (3R) ☐ Preventative Maintenance (PM)

Section 5. Safety

Please list the number and severity of crashes within the proposed project limits over the last 5 yrs. (2013-2017) (see <u>Michigan Crash Facts</u> for crash data)			
Total Crashes	67	Pedestrian & Bicycle Crashes	0
Fatalities	1	Serious Injuries	14
Using the attached Crash Reduction Factors sheet, please check each safety counter measure that will be included in the project			
Describe any other safety improvements this project will provide	Better driving surface and 5 foot wide paved shoulders.		

Section 6. Complete Streets

Does this project meet the <u>TwinCATS Complete Streets Policy</u> , approved in 2014?	☒ Yes ☐ No
If yes, Please explain what pedestrian and/or bicycle improvements are included	5 foot wide paved shoulders on both sides of the road.
If No, please state the reason why this project should be exempt from the TwinCATS Complete Streets Policy.	
Does this project connect to an existing pedestrian/bicycle facility or one that is planned to be completed from 2020-2023?	☐ Yes ☒ No If yes, please provide a map of the connecting facilities

Section 7. Regional Connectivity

What is the most current daily traffic count for the limits of this project?	☐ Less than 2000 ☐ 2000-5000 ☒ 5000-10,000 ☐ Above 10,000 Year of count: 2012 Source: TAMC
National Functional Classification (NFC) for this roadway (Berrien County NFC Map)	Major Collector
Does one of TCATA fixed route transit lines use the road? (Only indicate yes if it carries a current route, not a planned route).	☐ Yes ☒ No

Section 8. Strategic Planning & Investment

Is the project identified in a Asset Management Plan, or Capital Improvement Plan	☒ Yes ☐ No If yes, please cite the plan and page number: BCRD 2018 Asset Management Plan
Is the project identified in another planning documents such as a master plan or parks and recreation plan	☐ Yes ☐ No If yes, please cite the plan and page number:
Does the project cross jurisdictional boundaries?	☐ Yes ☒ No
If yes, will it be bid as a single project?	☐ Yes ☐ No ☐ NA
Will this project coordinate with other infrastructure projects (i.e. utility, water, sewer, etc.)	☐ Yes ☒ No If yes, please indicate the project type and construction year:
How many water main breaks have you had at this location in the past five years?	
Is there a completed a utilities assessment that included televising the sewers in the project area?	☐ Yes ☒ No
Will this project require environmental mitigation, purchase of Right of Way (ROW), or railroad permits?	☐ Yes ☒ No ☐ Not Sure If yes, which items are required:
Does this project perform Resurfacing, Reconstruction, or Preventative Maintenance on a segment adjacent to a segment where a federally-funded project was done during the 2017-2020 TwinCATS TIP cycle or RTE cycle?	☒ Yes ☐ No What segment was the PREVIOUS project done on? 2017 Hilltop Road Project

Section 9. Existing and Proposed Roadway Design

	Existing			Proposed		
Number of Vehicle Lanes	Through Traffic Lanes	Center Turn Lane	On Street Parking	Through Traffic Lanes	Center Turn Lane	On Street Parking
	2 lanes South of Hilltop and 4 lanes North of Hilltop	0	☐ Yes ☒ No	2 lanes South of Hilltop and 4 lanes North of Hilltop	0	☐ Yes ☒ No
Shoulder Surface	☒ Paved ☒ Unpaved		Width (ft.) 5 paved 1 gravel South of Hilltop and curb and gutter North of Hilltop	☒ Paved ☒ Unpaved		Width (ft.) 5 paved 1 gravel South of Hilltop and curb and gutter North of Hilltop
Sidewalk/ path information	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)	Placement ☐ One Side ☐ Both Sides ☐ Intermittent ☒ None		Width (ft.)
On road bicycle facilities	☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows _____ ☒ Wide Shoulders ☐ None			☐ Bike Lane ☐ Other (specify) _____ ☐ Sharrows _____ ☒ Wide Shoulders ☐ None		
Utilities, Sewer and Water	☐ Utilities Upgrades Needed ☐ Sewer and water work needed			☐ Replaced Utilities ☐ Relocating Utilities ☐ Sewer and Water Line Work		
Please describe any improvements being made as part of this project to crosswalks, signage or signals, or streetscape elements not discussed in project description			New pavement markings and signs.			
Does this project enhance connectivity of pedestrian or bicyclists to fixed route or Dial-A-Ride transit?			☐ Yes ☒ No If yes, how?			

Section 10. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for ☐ Local Match Submitted to SWMPC	10/1/22
Project Application Submitted to MOT	12/1/22
Grade Inspection Package Submitted to MDOT	1/15/23
Grade Inspection Meeting Scheduled	2/15/23
Final Plan and Estimate to MDOT	3/15/23

Right of Way (ROW) certified*	3/15/23
Rail Road Permits*	N/A
Environmental Mitigation*	3/15/23
Project Obligated	3/15/23
Project Letting	4/15/23
Construction Start ☐	6/1/23
Project Completion	9/1/23

*Enter NA if these items will not be required.

Proposed Improvement		% Reduction	Associated Crash Types
SEGMENT CRASH REDUCTION FACTORS			
Geometric Safety Enhancements			
☐	Center Left-Turn Lane - Construct	80%	Rear-End Left-Turn
		50%	Head-On Left-Turn
		20%	Head-On, Angle, Sideswipe*
		15%	Non Left-Turn Rear-End, Other*
☐	Right-Turn Lane - Construct	65%	Rear-End Right-Turn
		30%	Angle
		15%	Rear-End
		10%	Other*
☐	Horizontal Curve Flattening	30%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 1' each side)	5%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 2' each side)	10%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 3' each side)	15%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 4' each side)	20%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 5' each side)	25%	Lane Departure***
☐	Shoulders - Widen to Standard Width (add 6' each side)	30%	Lane Departure***
☐			
☐	Shoulders - Widen to Standard Width (add 7' each side)	35%	Lane Departure***
☐	Vertical Curve Modification	20%	All Applicable Crash Types +++
General Segment Enhancements			
☐	Access Management - Improve	15%	Drive-way Related Applicable Crashes
☐	Centerline Rumble Strips - Install	44%	K and A injury Applicable Crashes
		46%	Single Vehicle Run off Road Left Crashes
		43%	Sideswipe Same Crashes
		55%	Sideswipe Opposite Crashes
☒	High Friction Surface Treatment - Install	35%	Wet Crashes
☐	Recessed Durable Pavement Markings	20%	All Other Applicable Crashes
☐	Pedestrian Refuge - Install	5%	All Applicable Crashes
☐	Road Diet (4-3 Lane Conversion) - Install	50%	Pedestrian Crashes (Review NCHRP Report 841)
☐	Shoulder Rumble Strips	50%	Suburban - All Applicable Crashes
☐	Signing/Delineation on Horizontal Curves (Including Recessed Durable Pavement Markings) - Install	20%	Run-Off the Road Right Crashes
☐	Safety Edge Improvement	20%	Lane Departure***
☐		13%	All non-intersection crashes (CMF Clearing House ID 8658)

Roadside Enhancements			
☐	Bicycle Lanes - Install per standards	50%	Bicycle Crashes
☐	Shared Use Path - <i>Install</i>	33%	Bicycle and Pedestrian Related Crashes
☐	Fixed Objects From Clearzone (Trees, Culverts, Etc.) - <i>Removal</i>	75%	Fixed-Object Applicable Crashes
☐	Guardrail - <i>Install</i>	55%	Lane Departure ***Fatalities and "A" Injury Applicable Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Slope Flattening	15%	Fixed-Object, Overturn Applicable Crashes
☐	Living Snow Fence	20%	Crashes due to wintry surface conditions
☐	Lighting - <i>install on segment</i>	20%	Dark Unlighted Crashes
INTERSECTION CRASH REDUCTION FACTORS			
Pedestrian / Bicycle Enhancements			
☐	Bump Out / Curb Extension - <i>Remove Parking / Install</i>	30%	All Crashes
☐	Bicycle Lanes - Install per standards	25%	Bicycle Crashes
☐	Sidewalk for Pedestrians - <i>Construct</i>	85%	Pedestrian Crashes
☐	Intersection Lighting - <i>install</i>	75%	Pedestrian Fatal - Dark Unlighted Crashes
		40%	Pedestrian A-Injury - Dark Unlighted Crashes
		30%	All Applicable Dark Unlighted Crashes
☐	Rectangular Rapid Flashing Beacons	47%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Install new Pedestrian signal</i>	30%	Pedestrian Crashes
☐	Ped. Countdown Signals - <i>Upgrade from existing Pedestrian signal</i>	25%	Pedestrian Crashes
Signal Timing / Hardware Enhancements			
☐	Multiple Low-Cost Improvements	3%	Rear-End
		12%	Right-Angle
		3%	Nighttime
☐	Install ReflectORIZED Backplates	15%	All Applicable Crashes
☐	Add All-Red Clearance Interval - <i>Add per ITE</i>	20%	Head-On Left-Turn, Angle
☐	Yellow-Change Interval - <i>Increase</i>	10%	All Crash Types
☐	Box Span Signal - <i>Upgrade from Stop Control</i>	65%	Angle
		-25%	Rear-End (Increases Crashes)
		20%	All Other Non Rear-End Crashes
☐	Box Span Signal - <i>Upgrade from Diagonal Span</i>	10%	All Applicable Crashes+
☐	Protected Left-Turn Signal Phase - <i>Add</i>	30%	Left-Turn
☐	Signal Head Size - <i>Increase to 12"</i>	10%	All Applicable Crashes +
☐	Signal Optimization & Timing Updates	10%	All Applicable Crashes +
☐	Removing Night Flash from Signal Timing	50%	Nighttime Flash mode Related Crashes

Intersection Geometric Enhancements		
☐	Center Left-Turn Lane - Construct	80% Rear-End Left-Turn
		50% Head-On Left-Turn
		20% Head-On, Angle, Other
		15% Non Left-Turn Rear-End
		30% Angle
☐	Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	15% Rear-End
		10% Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related
		65% Angle-Turn, Head-On Left-Turn
☐	Offset Left-Turn Lane - Construct	20% Rear-End Left-Turn
		65% Angle-Turn
☐	Offset Right-Turn Lane - Construct	50% Other Applicable Crashes
		20% Rear-End Right Turn
☐	Right-Turn Lane - Construct	65% Rear-End Right-Turn
		20% Applicable Rear-End Crashes, Sideswipe Same Direction
☐	Roundabout	78% Fatal and A-Injury Reduction
		57% Minor Crash Reduction
☐	Lighting	- See MDOT Interchange Warranted Lighting Guidance and overall MDOT Lighting Guidance
General Intersection Enhancements (Non-Signalized Intersections)		
☐	All-Way Stop Control - New Installation	60% All Applicable Crashes
		30% All Crashes On Install Approach
☐	Ground Mounted Flashing Beacons (Red)- Install **	20% All Crashes On Install Approach
		30% Angle, Rear-End Crashes
☐	Pavement Markings - Improve/Upgrade	30% Angle, Rear-End Crashes
		15% All Applicable Crashes